

Linking the Built Environment to MHS Strategy

CAPT Steve Bell, USN, Director,
Facilities, BUMED

Clay Boenecke, Chief, Capital
Planning Branch, PPMD/TMA

COL Rick Bond, Commander, US
Army Health Facility Planning
Agency

CAPT Fred Foote, MC, USN, Project
Officer, The Epidaurus Project

COL Ronn Steele, Chief, US Air
Force Health Facilities Division



Presentation to Director, Office of Transformation
7 December 2006

Objectives

- Provide an overview of the Epidaurus Project, Patient Centered Care, and Evidenced Based Design and their relationship to
 - Health outcomes and patient satisfaction
 - Life cycle business operations
 - The MHS strategic plan & Transformation
- Gain OT support to incorporate the principles of Patient Centered Care and Evidence Based Design into ongoing transformation initiatives
- Initiate the process to embed transformational principles into MHS culture

Agenda

- Epidaurus Project Overview
 - Evidence Based Design
 - Patient Centered Design
- Civilian Project Example
- Opportunity for the MHS
- Discussion and Recommendations

Definitions



The Sanctuary of Asclepius at Epidauros was the most celebrated healing centre of the ancient world. The ancient Greeks approached health from a holistic point of view, and the Sanctuary included a theater, gymnasium, and stadium as well as traditional medical treatments. In Epidauros, the vast site of temples and hospital buildings is a tribute to the healing cults of Greek and Roman times.

Epidauros Project Symposium on Healing Design

Evidence-Based Design (EBD) - the conscientious, explicit and judicious use of current best evidence in making planning and design decisions that advance the needs of patients, staff, families and organizations.

Epidauros Project - conceived 2001 – What hospital architectural/design features embody patient-centered design (PCD)?”

Why Patient Centered Care and Evidence Based Design?

Hospitals Are Dangerous

44,000-95,000 die each year due to preventable medical errors

IOM, 1999

2,000,000 Hospital-acquired infections a year in U.S.; **88,000 die**

IOM, 2000

Infections are more serious:

22% of staph infection were MRSA in 1992

60% in 2005;

70%-90% of patients carrying MRSA are never identified

NY Times 2005

20% Nursing turnover

Nurses average 47+ years old

RWJF, 2005

The Role of the Physical Environment



1. More evidence than expected: **700+** rigorous studies
2. Many designs make hospitals more stressful & riskier for patients, families & staff.
3. A LOT of good evidence is available

Full report:

www.healthdesign.org/research/reports

*From Presentation, Craig Zimring, PhD, Professor of Architecture, Georgia Institute of Technology
Presentation to the MHS Tri Service Health Facility Conference, July 2006*

Epidaurus Project I-- 2001

- What defines patient-centered care?
- Ed Pellegrino, M.D. (Head, President's Council on Bioethics)
- Roger Bulger, M.D. (Pres. IOM; NIH)
- Eric Cassell, M.D. (Cornell Univ.)
- Foote, Barrett (NNMC); Mittleman (NIH)
- ***Consensus Statement 2002***

Patient Centered Care

Epidaurus Design Principles

- 1) **Promote integrity of the clinical encounter**

**Encounter with a healer in hopes of being healed -
covenant based, not contractual**

- (2) **Empower the patient**

**The patient's welfare and interest are the organizing
principle of care**

- (3) **Focus on relief of suffering**

Treat the whole person

- (4) **Promote long-term health and wellness**

Integrated care over entire life cycle; population health

Organized around the 4 bioethical principles of original Epidaurus document

Epidaurus Project II 2003-2006
Architects/Designers
USUHS Conferences, 2003 and 2006

- S. Frampton (Planetree)
- K. Hamilton (TX A&M)
- Wayne Ruga (CHD)
- Y. August (Seattle)
- S. Verderber (Tulane)
- R. Guenther (Green)
- B. Huelat (Healing Emt.)
- A. Ridenour (Arts)
- D. Kamp (Gardens)
- R. Orr (Planetree)
- B. Komiske (Philanthropy)

Consensus Design Statement 2006

- I. Integrity of Clinical Encounter
 - Core values; healing focus; **evidence-based design**
- II. Empower patient
 - Human scale; residentialism; family involvement
- III. Relief of suffering
 - Incorporate nature; Spirituality; use of the Arts
- IV. Lifelong healing relationship
 - Multidisciplinary spaces; “Green” design; advanced informatics; **outcomes analysis and EBM**

The Evidence - > 700 studies have demonstrated value -

Citations - Ulrich and Zimring, Role of the Physical Environment in the 21st Century Hospital (2004); available at www.healthdesign.org



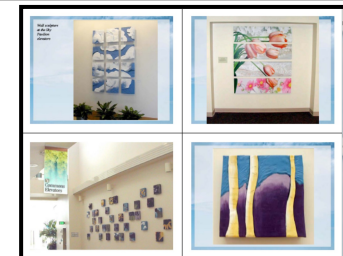
- Planetree ward: **Decreased** staff walking patterns (29% nurse work minutes)
- **Decreased** noise: **Decreased** readmission rate CCU; ▼BP; ▲pt satisfaction
- Clean air (HEPA): **Decreased** infection and death rates patients
- Bright light: **Decreased** pain meds; decreased

- Single Patient Rooms - Single patient rooms: **Decreased** infection rates, falls, noise, self-reported stress
- **Increased** confidentiality (HIPAA), family presence, satisfaction with care



- Gardens: **Increased** overall satisfaction rate with hospital
- Patients report **decreased** stress and less depression

- Art - **Decreased** pain med requirements in ICU
- **Decreased** length of stay surgical patients



Example of Bottom Line Impact Installing Patient Lifts

Increasing Safety

Projected costs of patient handling injuries based on cost per injury prior to ceiling lifts.

Unit	Direct Cost *	# Injuries	Avg direct cost per injury	Avg indirect cost (2x) **	Total Cost one injury	Avg # injuries per year	Total Annual Cost
Neuro	\$222,646.	15 (3 yrs)	\$14,843.	\$29,686	\$44,529	5	\$222,645
ICU	\$ 95,003	10 (2 yrs)	\$9,500.	\$19,000	\$28,500	5	\$142,500
subtotal							\$365,145

*Direct costs of just patient handling injuries

** Indirect costs include light duty salaries, replacement salaries, and training costs

PeaceHealth Riverbend, OR

Modest up front costs at a single MTF can provide long-term savings and improved outcomes.

Actual savings after Implementation

The potential impact across the MHS is staggering...

Unit	Direct Cost	# Injuries	Avg direct cost per injury	Avg indirect cost (2x)	Total Cost one injury	Avg # injuries per year	Total Annual Cost
Neuro	\$ 43,728	6 (2 yrs)	\$ 7288	\$14,576	\$21,864	3	\$ 54,660
ICU	\$ 0	0 (2 yrs)	\$ 0.	\$ 0	\$ 0	0	\$ 0
subtotal	\$ 43,728	6 (2 yrs)	\$ 7288	\$ 14,576	\$ 21,864	3	\$ 54,660

Cost for 234 lifts and 75 lift-ready rooms: \$1.6M

Payback: **2.5 years**

\$ 54,660

More Than Just Hardware

- Co-location of related clinics
- Wellness evaluations for all patients
- Focus on informatics
- Advanced Therapeutics Unit
- Design for outcomes analysis and evidence-based care

Opportunity Presented to MHS in BRAC and Transformation

- Billions of dollars to be invested in MHS Infrastructure (including equipment and technology)
- BRAC MJCSG Scenarios
 - NCA, SAMMC, METC
- Service BRAC/Transformation

QDR-17 & QDR-8 Convergence Epidaurus

- QDR-17: Patient Partnerships; Outcomes Analysis; Family-Centered Care; Evidence-Based Design; “Green” Design; Lean 6 Sigma
- QDR-8: Transformation of the MHS Infrastructure – focus on product (health care) versus process (design and construction)
- Epidaurus is a means of incorporating critical design features into all future facility designs—via the world’s experts in these fields

A singular opportunity for Military Medicine

A Vision for the Walter Reed National Military Medical Center at Bethesda

Achieve better outcomes, provide a less stressful environment, and obtain long-term savings by:

- Emphasizing nature and natural lighting
 - “Green Valley” between hospital and parking garages
 - Leverage the healing potential of the woodland park
- Transforming interior spaces
 - Planetree and non-traditional models
- Applying documented evidence-based design principles
 - Single patient rooms, sound attenuation, patient lifts,
- Aligning operations around patient processes rather than departments

World-Class Vision vs. Reality

How to bridge the “Funding Gap”

- Duty of Stewardship over tax dollars limits what BRAC can achieve
- Supplemental funding could fill the gap
 - Public-private partnerships
 - Possibility of Congressional interest
 - Philanthropy

Recommendations

- **Incorporate Patient Centered Care and Evidence Based Design principles into QDR, BRAC, and ongoing MHS operations**
 - Inclusion into RFP's
 - Non-intrusive design consultation
 - Objective peer review
- **Enhance high level visibility of Epidaurus/EBD initiative**
 - JAN 07 State of MHS conference
- **“World-class Vision” vs. BRAC funding** Investigate a process to identify funding gaps and to integrate potential supplemental funding into BRAC design processes and funding stream
- **Synchronize and coordinate disparate DoD initiatives**
- **Enhance DoD interaction and participation with the private sector and the Evidence Based Design community**
 - Agency on Health Research and Quality; Center for Health Design; Affiliate with “Pebble Project”
- **Align Epidaurus Project with QDR Roadmap**
 - Appropriate ownership, structure and resourcing
 - <http://hsa.usuhs.mil/epidaurus>